CLAIMS

1. A sampling rate conversion apparatus comprising: a conversion section that converts an input time domain signal to a frequency domain and obtains a first spectrum; an extension section that extends the frequency band of the first spectrum obtained; and an insertion section that inserts a second spectrum in the extended frequency band of the first spectrum after the extension.

2. A coding apparatus comprising: a conversion section that performs a frequency analysis of a signal having an input sampling frequency of Fx with an analysis length of $2 \cdot Na$ and obtains a first spectrum of an Na point; an extension section that extends the frequency band of the first spectrum obtained to an Nb point; and a coding section that specifies a second spectrum inserted in the extended frequency band of the first spectrum after the extension and outputs a code representing the second spectrum.

3. The coding apparatus according to claim 2, wherein said second spectrum is generated based on said first spectrum.

4. The coding apparatus according to claim 2, wherein said second spectrum is determined so as to resemble the spectrum included in a frequency band of $Na \leqq k < Nb$ out of

the spectrum obtained by the frequency analysis of the input signal having a sampling frequency of Fy at a 2 · Nb point.

5. The coding apparatus according to claim 2, wherein said coding section divides the frequency band of Na ≦ k<Nb into two or more subbands and outputs codes representing said second spectrum in subband units.

6. The coding apparatus according to claim 2, wherein said signal having a sampling frequency of Fx is a signal decoded with a lower layer of hierarchical coding.

7. A communication terminal apparatus comprising the coding apparatus according to claim 2.

8. A base station apparatus comprising the coding apparatus according to claim 2.

9. A decoding apparatus comprising: an acquisition section that performs a frequency analysis of a signal having a sampling frequency of Fx with an analysis length of 2 · Na and acquires a first spectrum in a frequency band of 0≦k<Na; a decoding section that receives a code and decodes a second spectrum in a frequency band of Na≦k<Nb; a generation section that combines said first spectrum and second spectrum and generates a spectrum in a frequency

band of $0 \leqq k < Nb$; and a conversion section that converts the spectrum included in the frequency band of $0 \leqq k < Nb$ to a time domain signal.

10. The decoding apparatus according to claim 9, wherein said second spectrum is generated based on the spectrum in a frequency band of $0 \leqq k < Na$.

11. The decoding apparatus according to claim 9, further comprising a section that inserts a specified value into a high-frequency part of the spectrum after said combination or discards a high-frequency part of the spectrum after said combination so that the width of the frequency band of the spectrum after the combination obtained by said generation section matches a predetermined width.

12. The decoding apparatus according to claim 9, wherein said signal having a sampling frequency of Fx is a signal decoded with a lower layer in hierarchical coding.

13. A communication terminal apparatus comprising the decoding apparatus according to claim 9.

14. A base station apparatus comprising the decoding apparatus according to claim 9.

15. A sampling rate conversion method comprising: a conversion step of converting an input time domain signal to a frequency domain and obtaining a first spectrum; an extension step of extending the frequency band of the first spectrum obtained; and an insertion step of inserting the second spectrum in the extended frequency band of the first spectrum after the extension.

16. A coding method comprising: a conversion step of performing a frequency analysis of an input signal having a sampling frequency of Fx with an analysis length of $2 \cdot Na$ and obtaining a first spectrum at an Na point;an extension step of extending the frequency band of the first spectrum obtained to an Nb point; and a coding step of specifying a second spectrum inserted in the frequency band where the first spectrum after the extension is extended and outputting the code representing the second spectrum.

17. A decoding method comprising: an acquisition step of performing a frequency analysis of a signal having a sampling frequency of Fx with an analysis length of $2 \cdot Na$ and acquiring a first spectrum in a frequency band of $0 \leqq k < Na$; a decoding step of receiving a code and decoding a second spectrum in a frequency band of $Na \leqq k < Nb$; a generation step of combining said first spectrum and second spectrum and generating a spectrum in a frequency

band of $0 \leqq k < Nb$; and a conversion step of converting the spectrum included in the frequency band of $0 \leqq k < Nb$ to a time domain signal.